



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,571	12/29/2000	Yukimasa Yokoyama	2500.65080	8426
24978	7590	03/03/2004	EXAMINER	
GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606			TSAI, CAROL S W	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/751,571	YOKOYAMA ET AL.
Examiner	Art Unit	
Carol S Tsai	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 January 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 4-6, 9-11, and 16-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 4-6,9-11 and 16-24 is/are allowed.

6) Claim(s) 25-28 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 29 December 2000 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 1/26/04 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 5,790,334 to Cunningham.

Cunningham discloses a computer-readable storage medium (see Abstract, lines 1-16; col. 3, lines 53-63; col. 4, lines 33-42; and col. 6, lines 43-52) for determining a magnitude of a

sensing current to be supplied to an electromagnetic transducer (MR transducer heads 108 shown on Fig. 1), comprising: supplying an electric current of a first current value to the electromagnetic transducer and determining a physical quantity appearing in the electromagnetic transducer based on the electric current of the first current value (see Fig. 4; col. 3, lines 19-27; col. 8, lines 21-35 and lines 49-60; col. 9, lines 61-63; and col. 10, line 39-60); supplying an electric current of a second current value, different from the first current value, to the electromagnetic transducer and determining the physical quantity appearing in the electromagnetic transducer based on the electric current of the second current value (see Fig. 4; col. 3, lines 19-27; col. 8, lines 35-39 and lines 49-60; col. 9, lines 63-66; and col. 10, line 39-60); deriving a variation in temperature of the electromagnetic transducer based on the change in the physical quantity (see Fig. 4; col. 3, lines 19-38; col. 6, lines 43-54; col. 8, line 21 to col. 9, line 32; and col. 9, line 58 to col. 10, line 38); and determining the magnitude of the sensing current based on a derived variation in temperature of the electromagnetic transducer (see Fig. 4; col. 8, lines 39-48; col. 9, line 66 to col. 10, line 38; and col. 10, line 61 to col. 11, line 24).

Cunningham does not disclose expressly computer program instructions.

It is, however, considered inherent that Cunningham containing computer program instructions (see col. 6, lines 43-46; col. 7, lines 20-28; and col. 8, lines 21-48), because such program instruction are known to be necessarily provided in the resistance ratio calculation circuit in order that the resistance ratio can be calculated by comparing the resistance of the same MR read head at different bias levels.

As to claim 26, Cunningham also discloses the storage medium being a memory chip incorporated in a magnetic disk drive (see Abstract, lines 1-16; col. 3, lines 53-63; col. 4, lines 33-42; and col. 6, lines 43-52).

As to claim 27, Cunningham also discloses calculating a first electric resistance value of the electromagnetic transducer based on a first voltage value appearing in the electromagnetic transducer in response to supply of the electric current of the first current value; calculating a second electric resistance value of the electromagnetic transducer based on a second voltage value appearing in the electromagnetic transducer in response to supply of the electric current of the second current value; and calculating a quantity of variation in temperature of the electromagnetic transducer based on the first and second electric resistance values in determining the magnitude of the sensing current (see col. 7, line 40 to col. 8, line 20).

As to claim 28, Cunningham also discloses the storage medium being a memory chip incorporated in a magnetic disk drive (see Abstract, lines 1-16; col. 3, lines 53-63; col. 4, lines 33-42; and col. 6, lines 43-52).

Response to Arguments

5. Applicant's arguments with respect to claim 1/26/2004 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

6. Claims 4-6, 9-11, and 16-24 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:

U. S. Patent No. 5,790,334 to Cunningham is the reference closest to the claimed invention. Cunningham discloses a method of determining a magnitude of a sensing current to be supplied to an electromagnetic transducer, comprising: supplying an electric current of a first current value to the electromagnetic transducer; determining a physical quantity appearing in the electromagnetic transducer based on the electric current of the first current value; supplying an electric current of a second current value, different from the first current value, to the electromagnetic transducer; determining the physical quantity appearing in the electromagnetic transducer based on the electric current of the second current value; deriving a variation in temperature of the electromagnetic transducer based on the change in the physical quantity; and determining the magnitude of the sensing current based on a derived variation in temperature of the electromagnetic transducer. However, Cunningham do not teach deriving an expected lifetime of the electromagnetic transducer based on the variation in temperature when determining the magnitude of the sensing current; comparing the expected lifetime with a predetermined target upper limit lifetime; and adding an incremental value to a preceding second current value so as to set a new second current value if the expected lifetime takes a value exceeding the predetermined target upper limit lifetime; and including all of the other limitations in the respective independent claims.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If

Art Unit: 2857

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for TC 2800 is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (571) 272-1585 or (571) 272-2800.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.



Carol S. W. Tsai
Patent Examiner
Art Unit 2857

03/02/04